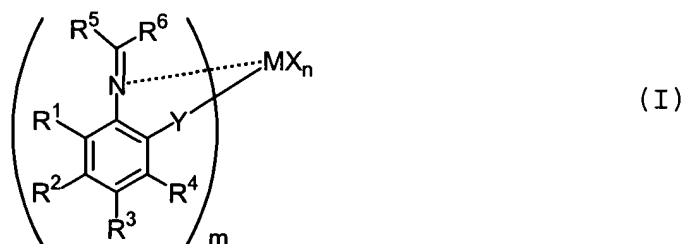


(B-1) a reducing agent which reacts with the transition metal compound (A) to convert an imine structure moiety to a metal amide structure, and

(B-2) a compound which reacts with the transition metal compound (A) to form an ion pair;

wherein said transition metal compound is represented by the following formula (I)



wherein M is a transition metal atom of Groups 4 and 5 of the periodic table,

m is an integer of 1 to 6,

Y is an oxygen atom, a sulfur atom or a selenium atom, or a nitrogen atom having a substituent R<sup>7</sup>,

R<sup>1</sup> to R<sup>7</sup> may be the same or different, and are each a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a heterocyclic compound residual group, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of R<sup>1</sup> to R<sup>7</sup> may be bonded to each other to form a

ring except for the case where  $R^1$  and  $R^5$  or  $R^1$  and  $R^6$  are bonded to each other to form an aromatic ring, and when  $m$  is 2 or greater, one group of  $R^1$  to  $R^7$  contained in one ligand and one group of  $R^1$  to  $R^7$  contained in other ligands may be bonded, and  $R^1$ s,  $R^2$ s,  $R^3$ s,  $R^4$ s,  $R^5$ s,  $R^6$ s and  $R^7$ s may be the same or different,

$n$  is a number satisfying a valence of  $M$ , and

$X$  is a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a nitrogen-containing group, a boron-containing group, a sulfur-containing group, a phosphorus-containing group, a halogen-containing group, an aluminum-containing group, a heterocyclic compound residual group, a silicon-containing group, a germanium-containing group or a tin-containing group, and when  $n$  is 2 or greater, plural groups indicated by  $X$  may be the same or different, and plural groups indicated by  $X$  may be bonded to each other to form a ring.

3. (Amended) The process for polymerizing an olefin as claimed in claim 1, wherein the olefin polymerization catalyst is a catalyst comprising the transition metal compound (A), the reducing agent (B-1), the compound (B-2) which reacts with the transition metal compound (A) to form an ion pair, and a carrier (C).